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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/134,478	08/14/1998	TAKAFUMI NOGUCHI	2091-0162P	8041

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EXAMINER

ROSENDALE, MATTHEW L

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/134,478

Applicant(s)

NOGUCHI, TAKAFUMI

Examiner

Matthew L. Rosendale

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 13 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 02 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s): _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments, see pages 5 – 10 of the amendment, filed January 2, 2003, with respect to the rejection(s) of claim(s) 1, 5, 6, 9, 10, and 13 – 15 over Kim, 2 – 4, 7, and 11 over Kim in view of Komiya, and 8, 12, and 16 over Kim in view of Nagasaka have been fully considered and are persuasive. The examiner agrees that Kim does not disclose a method of determining a rate of pixels among all pixels having a maximum brightness and adjusting the brightness of each pixel based on said rate. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Van de Poel et al.

Response to Amendment

Applicant's arguments with respect to claims 1 - 16 have been considered but are moot in view of the new ground(s) of rejection. Because the grounds of rejection have changed, this action is made non-final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 1 – 8 and 17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Referring to claims 1 and 17, the applicant claims an adjustment made to said image acquisition device and/or said pixel value based on the rate of pixels having a maximum brightness among all pixels.

However there is no support in the specification for an adjustment made to the image acquisition device and the pixel values based on the rate of pixels having the maximum brightness among all pixels. Instead the specification discloses two embodiments where a pre-photography adjustment is made to the camera based on the brightness of the previously captured image, or that an adjustment is made to a captured image based on the number of pixels having the maximum brightness determined by calculating a cumulative histogram of all the pixels in the captured image.

Therefore, for examination purposes, claims 1 and 17 will be interpreted as, “making an adjustment to said image acquisition device or said pixel value based on the rate.”

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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1. Claims 1, 2, 5, 8, 9, 12, 13, and 16 – 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Van de Poel et al.

Referring to claim 1, Van de Poel discloses a method of adjusting the brightness of an image comprising, acquiring image data and expressing each pixel value as a set of three mutually independent components and defining the brightness of each pixel based on the three components and determining a rate of pixels based on a number of pixels having a maximum brightness among all pixels and making an adjustment to the digital camera based on said rate. Van de Poel discloses a three-chip CCD configuration where each CCD had its own color filter designed to capture red, green, or blue object light (Col. 5, Lines 29 – 43). Figure 3 of Van de Poel shows a cumulative histogram plotting the density frequency of the brightness of each pixel. The region $X_1 - X_2$ shows pixels having a maximum brightness. If the rate of pixels in the region $X_1 - X_2$ exceeds a predetermined rate such that the following equation is satisfied:

$$\alpha = X_{\max} - X_1 / X_{\max} - X_2 \text{ and } \alpha \leq .875$$

Then the image is determined to be over exposed and the user can make an adjustment to the digital camera so that the image may be re-photographed properly exposed (Col. 9, Line 46 – Col. 11, Line 27 and Col. 13, Lines 43 - 55).

2. Referring to claim 2, Van de Poel discloses an image acquisition device being a digital camera 21 in figure 1 and the adjustment to image acquisition device is an exposure value at the time of photography by the digital camera. Figure 3 of Van de Poel shows a cumulative histogram plotting the density frequency of the brightness of each pixel. The region $X_1 - X_2$

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shows pixels having a maximum brightness. If the rate of pixels in the region $X_1 - X_2$ exceeds a predetermined rate such that the following equation is satisfied:

$$\alpha = X_{\max} - X_1 / X_{\max} - X_2 \text{ and } \alpha \leq .875$$

Then the image is determined to be over exposed and the user can make an adjustment to the digital camera so that the image may be re-photographed properly exposed (Col. 9, Line 46 – Col. 11, Line 27 and Col. 13, Lines 43 - 55).

3. Referring to claim 5, Van de Poel discloses an image acquisition device being a digital camera 21 in figure 1 and the adjustment to the pixel values of the image is a data transformation process of transforming the acquired digital image data. Instead of the user making an adjustment to correct the exposure of an image, the image data may be corrected after being captured based on the cumulative histogram shown in figure 4 where the region $X_1 - X_2$ shows pixels having a maximum brightness and the cumulative densities are remapped such that the following condition is satisfied:

$$X_S = X_1, X_B = X_2, X_E = X_{\max}$$

$$X'_S, X'_B, X'_E \text{ are corrected values of } X_S, X_B, X_E$$

$$X'_S = 0, X'_B = \alpha, X'_E = X_{\max} \text{ wherein } \alpha \text{ is in the range of [60\% to 95\%]}$$

(Col. 11, Line 65 – Col. 13, Line 5 and Col. 13, Lines 43 - 55).

4. Referring to claim 8, Van de Poel defines brightness for an image having red, green, and blue color components to be the maximum brightness for the red, green, and blue signals at each pixel location Col. 13, Lines 43 – 55).

5. Referring to claim 9, Van de Poel discloses a digital camera 21 in figure 1 comprising an image pickup means 26 for capturing an image and expressing it in a set of three mutually independent RGB components, a brightness analyzing means for computing a histogram of the brightness of the pixel defined based on the three components for the image data acquired by the image pickup means and an exposure control means for making an adjustment to an exposure value at the time of photography on the basis of the histogram so that a rate of pixels based on a number of pixels having a maximum brightness among all pixels becomes a predetermined rate. Figure 3 of Van de Poel shows a cumulative histogram plotting the density frequency of the brightness of each pixel. The region $X_1 - X_2$ shows pixels having a maximum brightness. If the rate of pixels in the region $X_1 - X_2$ exceeds a predetermined rate such that the following equation is satisfied:

$$\alpha = X_{\max} - X_1 / X_{\max} - X_2 \text{ and } \alpha \leq .875$$

Then the image is determined to be over exposed and the user can make an adjustment to the digital camera so that the image may be re-photographed properly exposed (Col. 9, Line 46 – Col. 11, Line 27 and Col. 13, Lines 43 - 55).

6. Referring to claim 12, Van de Poel defines brightness for an image having red, green, and blue color components to be the maximum brightness for the red, green, and blue signals at each pixel location Col. 13, Lines 43 – 55).

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7. Referring to claim 13, Van de Poel discloses an image processor comprising a digital camera 21 in figure 1 for capturing an image expressed as three mutually exclusive RGB components (Col. 5, Lines 29 – 43), brightness analyzing means for computing a histogram of the brightness for the pixel defined based on the three components for the digital data acquired by the data acquisition means, and a data transforming means for performing a data transformation process on the acquired digital data on the basis of the histogram so that a rate of pixel based on a number of pixels having a maximum brightness among all pixels is made a predetermined rate. Instead of the user making an adjustment to correct the exposure of an image, the image data may be corrected after being captured based on the cumulative histogram shown in figure 4 where the region $X_1 - X_2$ shows pixels having a maximum brightness and the cumulative densities are remapped such that the following condition is satisfied:

$$X_S = X_1, X_B = X_2, X_E = X_{MAX}$$

X'_S, X'_B, X'_E are corrected values of X_S, X_B, X_E

$$X'_S = 0, X'_B = \alpha, X'_E = X_{MAX} \text{ wherein } \alpha \text{ is in the range of [60\% to 95\%]}$$

(Col. 11, Line 65 – Col. 13, Line 5 and Col. 13, Lines 43 - 55).

8. Referring to claim 16, Van de Poel defines brightness for an image having red, green, and blue color components to be the maximum brightness for the red, green, and blue signals at each pixel location Col. 13, Lines 43 – 55).

9. Referring to claim 17, Van de Poel discloses a method of adjusting the brightness of an image comprising, acquiring image data and expressing each pixel value as chrominance RGB

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values (Col. 5, Lines 29 – 43), defining the brightness of each pixel based on the chrominance RGB values, and determining a rate of pixels based on a number of pixels having a maximum brightness among all pixels and making an adjustment to the digital camera. Figure 3 of Van de Poel shows a cumulative histogram plotting the density frequency of the brightness of each pixel. The region $X_1 - X_2$ shows pixels having a maximum brightness. If the rate of pixels in the region $X_1 - X_2$ exceeds a predetermined rate such that the following equation is satisfied:

$$\alpha = X_{\max} - X_1 / X_{\max} - X_2 \text{ and } \alpha \leq .875$$

Then the image is determined to be over exposed and the user can make an adjustment to the digital camera so that the image may be re-photographed properly exposed (Col. 9, Line 46 – Col. 11, Line 27 and Col. 13, Lines 43 - 55).

10. Referring to claim 18, Van de Poel discloses a digital camera 21 in figure 1 comprising an image pickup means 26 for capturing an image and expressing it as chrominance RGB values (Col. 5, Lines 29 – 43), a brightness analyzing means for computing a histogram of the brightness of the pixel defined based on the chrominance RGB values for the image data acquired by the image pickup means and an exposure control means for making an adjustment to an exposure value at the time of photography on the basis of the histogram so that a rate of pixels based on a number of pixels having a maximum brightness among all pixels becomes a predetermined rate. Figure 3 of Van de Poel shows a cumulative histogram plotting the density frequency of the brightness of each pixel. The region $X_1 - X_2$ shows pixels having a maximum brightness. If the rate of pixels in the region $X_1 - X_2$ exceeds a predetermined rate such that the following equation is satisfied:

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$$\alpha = X_{\max} - X_1 / X_{\max} - X_2 \text{ and } \alpha \leq .875$$

Then the image is determined to be over exposed and the user can make an adjustment to the digital camera so that the image may be re-photographed properly exposed (Col. 9, Line 46 – Col. 11, Line 27 and Col. 13, Lines 43 - 55).

11. Referring to claim 19, Van de Poel discloses an image processor comprising a digital camera 21 in figure 1 for capturing an image expressed as chrominance RGB values (Col. 5, Lines 29 – 43), brightness analyzing means for computing a histogram of the brightness for the pixel defined based on the chrominance RGB values for the digital data acquired by the data acquisition means, and a data transforming means for performing a data transformation process on the acquired digital data on the basis of the histogram so that a rate of pixel based on a number of pixels having a maximum brightness among all pixels is made a predetermined rate. Instead of the user making an adjustment to correct the exposure of an image, the image data may be corrected after being captured based on the cumulative histogram shown in figure 4 where the region $X_1 - X_2$ shows pixels having a maximum brightness and the cumulative densities are remapped such that the following condition is satisfied:

$$X_S = X_1, X_B = X_2, X_E = X_{\max}$$

$$X'_S, X'_B, X'_E \text{ are corrected values of } X_S, X_B, X_E$$

$$X'_S = 0, X'_B = \alpha, X'_E = X_{\max} \text{ wherein } \alpha \text{ is in the range of [60\% to 95\%]}$$

(Col. 11, Line 65 – Col. 13, Line 5 and Col. 13, Lines 43 – 55)).

Claim Objections

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Claims 3, 4, 6, and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Referring to claims 3 and 6, the prior art fails to teach or suggest performing the image transformation process based on the following equation:

$$(R' \ G' \ B') = k(R \ G \ B)$$

Where k is a constant determined by the rate of pixels having a maximum brightness among all pixels.

Referring to claims 4 and 7, the prior art fails to teach or suggest performing the image transformation process based on the following equation:

$$(R' \ G' \ B') = (R \ G \ B) + (k \ k \ k)$$

Where k is a constant determined by the rate of pixels having a maximum brightness among all pixels.

Claims 10, 11, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claims 10 and 14, the prior art fails to teach or suggest performing the image transformation process based on the following equation:

$$(R' \ G' \ B') = k(R \ G \ B)$$

Where k is a constant determined by the rate of pixels having a maximum brightness among all pixels.

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Referring to claims 11 and 15, the prior art fails to teach or suggest performing the image transformation process based on the following equation:

$$(R' G' B') = (R G B) + (k k k)$$

Where k is a constant determined by the rate of pixels having a maximum brightness among all pixels.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Thursday 8: 00am-6: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is (703) 306-0377.

MLR
March 10, 2003


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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